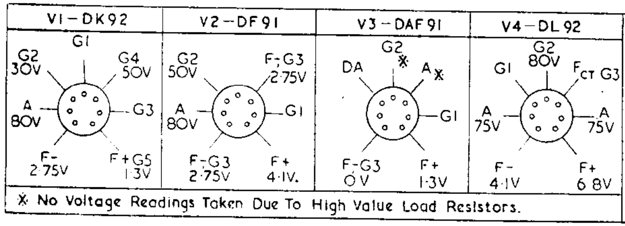
ALBA 707, 707B, PORTABLE RG

Portable radiogram consisting of a four-valve, two waveband, AC/DC/battery operated superhet with self-contained frame aerial, and a Garrard spring-driven single-record player unit with 10in. turntable and magnetic pickup. Fabric-covered case with leather carrying handle. Weight without batteries 17¾lbs. Made by A. J. Balcombe Ltd., 52/58 Tabernacle Street, London, EC2

AERIAL. The receiver is fitted with a frame aerial L1, consisting of approximately 8 turns of insulated wire wound in a groove under top plastic band around outside of lid, together with loading coils L2(MW) L3(LW). Frame and loading coils are wired in series across aerial tuning capacitor VC1 and connected to g3 of heptode frequency-changer V1.

On MW band, L3 is shorted by S1. L1 L2 are tuned by VC1 and trimmed by T1. On LW band, S1 is open and L1 L2 L3 are tuned by VC1 with trimming provided by T2 across L3.

AVC decoupled by R6 C2 is fed through L1 L2 L3 to g3 of V1. G4 voltage is obtained from R4



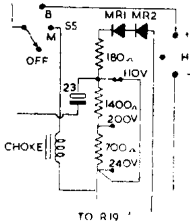
✱ No Voltage Readings Taken Due To High Value Load Resistors.

Mains Operation

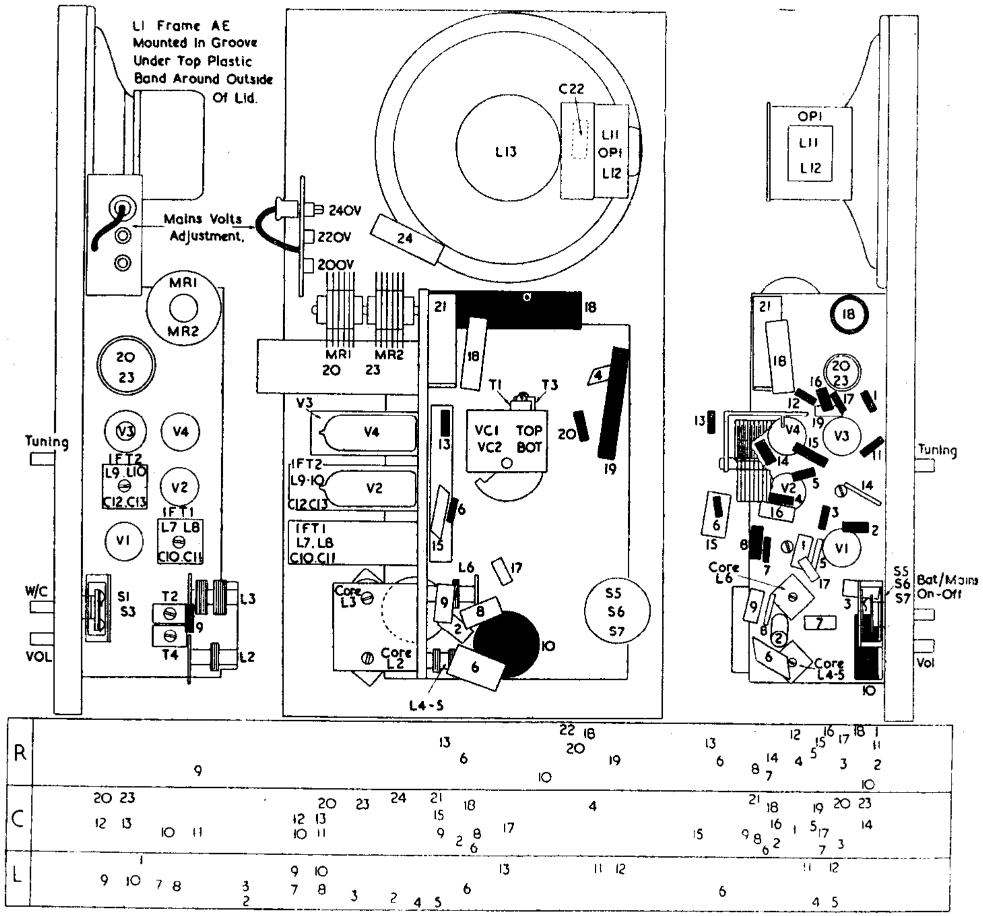
RECTIFIER CURRENT = 67 MA
HT CURRENT = 22 MA
LT CURRENT = 42 MA

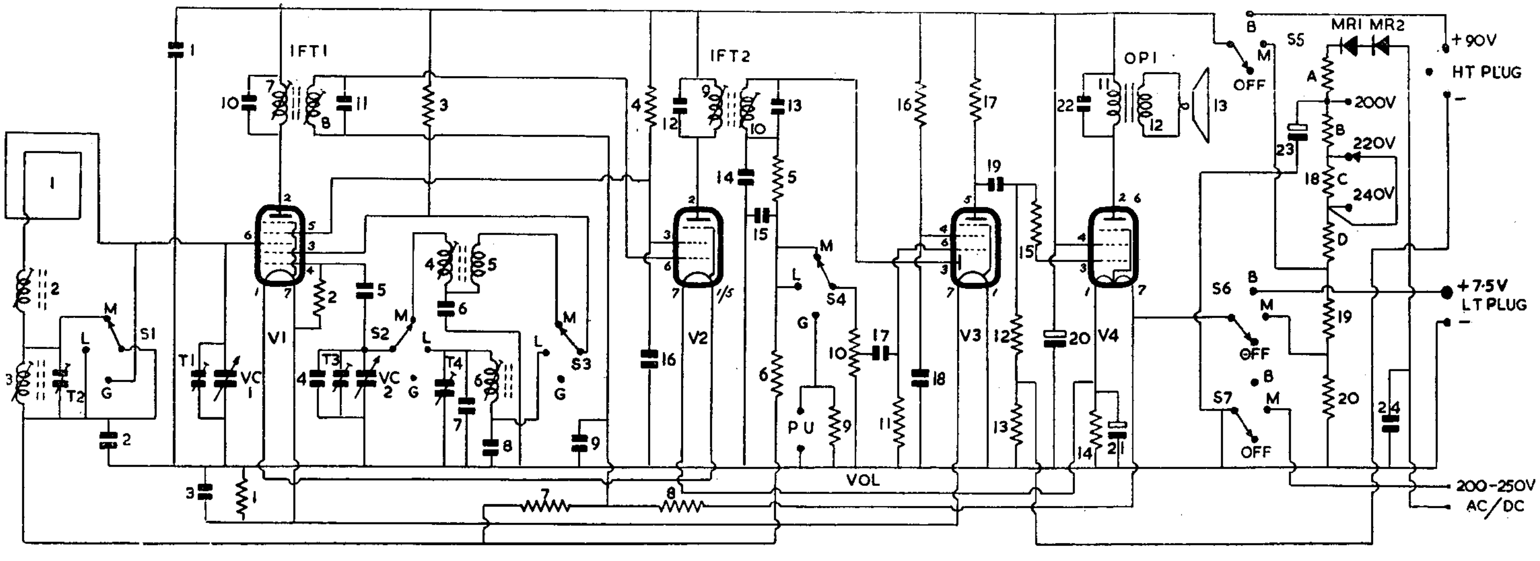
Battery Operation

HT CURRENT = 13·5MA
LT CURRENT = 50MA
BIAS DEVELOPED ACROSS R13 = 3V



In the 707B





RESISTORS

R	Ohms	Watts
1 ...	220 ...	⅛
2 ...	27K ...	⅛
3 ...	33K ...	⅛
4 ...	39K ...	⅛
5 ...	47K ...	⅛
6 ...	2.2M ...	⅛
7 ...	2.2M ...	⅛
8 ...	10M ...	¼
9 ...	4.7K ...	⅛
10 ...	2M ...	Potr.
11 ...	2.2M ...	⅛
12 ...	1M ...	⅛
13 ...	220 ...	⅛
14 ...	330 ...	¼
15 ...	10K ...	¼
16 ...	4.7M ...	⅛
17 ...	1M ...	⅛
18 ...	2.3K WW Mains Dropper, A-200, B-350, C-350, D-1400	
19 ...	1750 WW	
20 ...	10K ...	¼

CAPACITORS

C	Capacity Type
1 ...	.1 Tubular 150V
2 ...	.1 Tubular 150V
3 ...	.1 Tubular 150V
4 ...	15pF Silver Mica
5 ...	100pF Silver Mica
6 ...	625pF Silver Mica
7 ...	15pF Silver Mica
8	250pF Silver Mica
9 ...	.05 Tubular 150V
10 ...	100pF Silver Mica
11 ...	100pF Silver Mica
12 ...	100pF Silver Mica
13 ...	100pF Silver Mica
14 ...	100pF Silver Mica
15 ...	100pF Silver Mica
16 ...	.05 Tubular 150V
17 ...	.001 Tubular 350V
18 ...	.05 Tubular 350V
19 ...	.005 Tubular 350V
20 ...	32 Electrolytic 275V
21 ...	50 Electrolytic 12V
22 ...	.005 Tubular 500V
23 ...	32 Electrolytic 275V
24 ...	.01 Tubular 1000V

INDUCTORS

L	Ohms
2 ...	... 1
3 ...	... 8
4 ...	... 3
5 ...	... 1.5
6 ...	... 11
7 ...	... 14.5
8, 9, 10	... 10
11 ...	... 500
13 ...	... 2.5

decoupled by C16. Primary L7 C10 of IFTI is in the anode circuit.

Oscillator employs gl g2 of V1 as a triode, connected in a tuned-grid shunt-fed circuit. Grid coils L4(MW) L6(LW) are switched by S2 to oscillator tuning capacitor VC2 and coupled by C5 to oscillator grid (gl) of V1.

T3 C4(MW) and T4 C7(LW) are trimmers and C6(MW) C8(LW) are padders. Automatic bias for gl is developed on C5 with R2 as leak.

Anode reaction voltages, obtained inductively from L5(MW), and capacitively across padder C8(LW), are switched by S3 to oscillator anode (g2) of V1 of which R3 is the load.

IF amplifier operates at 470kc/s. Secondary L8 C11 of IFT1 feeds signal and AVC voltages, decoupled by R7 C9, to grid of IF amplifier V2. Screen voltage is obtained, in common with g4 of V1, from R4, decoupling being by C16. Suppressor is internally strapped to negative side of filament. Primary L9 C12 of IFT2 is in the anode circuit.

Signal rectifier. Secondary L10 C13 of IFT2 feeds signal to diode anode of V3. R10 the volume control is the load and R5 C14 C15 an IF filter.

Pickup. Signal from magnetic pickup is applied across R9 and in Gram position of S4, which is ganged to wavechange switches S1 to S3, is fed to volume control R10. To prevent radio breakthrough on record reproduction, g3 of V1 is ' earthed ' to AVC line, and oscillator grid (gl) and anode (g2) are disconnected from their tuned circuits.

AVC. The DC component of the rectified signal across R10 is decoupled by R6 C5 and applied through L2 L3 to g3 of V1, and further decoupled by R7 C9 and fed to gl of V2.

R8, with R7 R6 and volume control R10, form a potential divider across the 7.5V DC filament supply. Diode anode V3 and control grids V1, V2 are thus fed with a positive voltage from the potential divider which is approximately equal to voltage between their filaments and chassis. The two voltages in effect balance each other out and provide zero bias conditions.

AF amplifier. C17 feeds signal from volume control R10 to grid of pentode AF amplifier section of V3. Automatic bias for grid is developed on C17 with R11 as leak. Screen voltage is obtained from R16 decoupled by C18. Suppressor is internally connected to negative side of filament. R17 is anode load.

Output stage. C19 feeds signal at anode V3 through stopper R15 to grid of pentode output amplifier V4. Normally grid is biased negatively by virtue of its filament being at high potential side of LT supply. On battery operation, however, anode current of V4 is reduced, to prolong life of battery, by increasing negative bias on grid by returning its grid resistor R12 to chassis through R13 in negative HT battery lead.

Screen voltage is obtained direct from HT line, decoupling being by C20. Suppressor is internally connected to centre tap of filament.

Audio output at anode V4 is transformer fed by OP1 to a 5in. PM speaker L13. C22 provides tone correction.

HT of 90V is provided by an Ever Ready Batrymax B107 or alternatively from the mains. Receiver HT line is switched by S5 to which ever supply is desired. HT line is RF decoupled by C1. C20 decouples HT battery and functions as smoothing capacitor on mains-generated HT.

When operated from AC mains, HT is provided by series-connected rectifiers MR1 MR2 which are fed direct from input mains. HT is resistance-capacity smoothed by R18 C23 and C20. Tappings on R18 are provided to allow rectified output to be adjusted to give approximately 90V with mains input of between 200 and 250V.

Model 707B, which is suitable for 100-120, 200-250V AC/DC mains, is fitted with a different value dropper R18 and in addition has a smoothing choke in series with HT feed to S5 and receiver.

To compensate for lower resistance of MR1 MR2 when used on DC inputs, reservoir smoothing capacitor C23 is connected to 200V tapping on R18. C23 should be rated to handle 150mA ripple current.

LT of 7.5V for the series-connected filaments of V1 to V4 is provided by an Ever Ready All-dry 31 battery or, if the receiver is operated from the mains, from the rectified and smoothed HT through potential divider R19 R20. Receiver LT positive line is switched by S6 to appropriate source of supply.

R14 decoupled by C21 and R1 decoupled by C3 are current by-pass resistors to maintain correct voltage across each valve filament. S7 which is ganged to S5 S6 is mains on/off switch, whilst on battery operation HT and LT circuits are switched off by S5 S6 respectively.

Chassis removal. Unscrew gram motor winding handle from side of case and insert coin in slots of the two quick-release screws and twist through 90 degrees. Place fingers under left hand side of turntable and lift up and withdraw motorboard. Pickup connecting leads are long enough to allow motorboard to be placed on bench. Next remove pickup and LT battery lead cleat fixing screw.

Receiver panel with chassis attached can be tilted in three directions sufficiently to carry out voltage checks and valve replacement. For major repairs chassis can be completely removed from case after frame aerial leads are unsoldered from tags (under cover plate) on inside of lid and mains leads from input socket.

TRIMMING INSTRUCTIONS

Apply signal as stated below	Tune Receiver to	Trim in Order stated for Max. Output
(1) 470 kc/s to g3 of V1 via .01 mF	—	Cores L10, L9, L8, L7
(2) 600 kc/s to frame aerial via Loop,	500 metres	Cores L4, L2
(3) 1.5 mc/s as above	200 metres	T3, T1
(4) 154 kc/s as above ...	1950 metres	Cores L6, L3
(5) 300 kc/s as above ...	1000 metres	T4, T2